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A rare cause of small bowel obstruction due to bezoar in a virgin abdomen

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ABSTRACT

INTRODUCTION: Bezoar is an unusual cause of small bowel obstruction accounting for 0.4–4% of all mechanical bowel obstruction. The common site of obstruction is terminal ileum.
CASE REPORT: A 28-year-old male with no past surgical history, known to have severe mental retardation presented with anorexia. CT scan demonstrated dilated small bowel loops and intraluminal ileal mass with mottled appearance. At exploratory laparotomy, a bezoar was found impacted in the terminal ileum 5–6 inches away from the ileocecal valve and was removed through an enterotomy.
DISCUSSION: Bezoars are concretions of fibers or foreign bodies in the alimentary tract. Small bowel obstruction is one of common clinical symptoms. The typical finding of well-defined intraluminal mass with mottled gas pattern in CT scan is suggestive of an intestinal bezoar. The treatment option of bezoar is surgery including manual fragmentation of bezoar and pushing it toward cecum, enterotomy or segmental bowel resection. Thorough exploration of abdominal cavity should be done to exclude the presence of concomitant bezoars. Recurrence is common unless underlying predisposing condition is corrected.
CONCLUSIONS: Bezoar-induced small bowel obstruction remains an uncommon diagnosis. It should be suspected in patients with an increased risk of bezoar formation, such as in the presence of previous gastric surgery, a history suggestive of increased fiber intake, or patient with psychiatric disorders. CT scan is helpful for preoperative diagnosis.

1. Introduction

Small bowel obstruction (SBO) is a common acute presentation in any general surgical unit. However, its preoperative diagnosis and management may often be difficult because of its myriad causes. Unlike post-operative adhesions, which accounts for 60–80% of all cause, SBO secondary to bezoar impaction is considerably less common, with the report frequency around 0.4–4% [1]. There are four types of bezoars: phytobezoars, trichobezoars, pharmacobezoars, lactobezoars. Bezoar causing SBO in patients with previous gastric surgery is well known as a late complication, although very rare. Incidence of postgastrectomy bezoar ranges between 5 and 12% [3]. Other predisposing factors are ingestion of high-fiber diet, abnormal chewing, diminish gastric secrection and motility, neuropathy in diabetic patients, hypothyroidism, and myotonic dystrophy [4]. An accurate preoperative diagnosis is often difficult due to lack of specific symptoms. Clinical presentation of a bezoar-induced SBO with an acute surgical abdomen is very rare, occurring in 1.1% of the case [2]. We described here a rare case of a trichobezoar-induced SBO in a patient with no past surgical history who presented with an unremarkable abdominal examination.

2. Case report

A 28-year-old male with no past surgical history presented with 3 day history of anorexia. He was known to have severe mental retardation, self-destructive behavior and non-verbal, a group home resident for years. History was taken from the health aid. He was noticed by the resident home staff of losing appetite for the last 3 days. He otherwise had a great appetite and would eat until restricted.

On clinical examination, the patient was non-verbal, not in distressed and not compliant to examination. His abdomen was unremarkable. Bowel sound was normal. He had a blood pressure of 139/91 mmHg, a pulse rate of 108 beats/min, a respiratory rate of 17 breaths/min, and body temperature of 37. Laboratory evaluation revealed a white blood cell count of 12.1×10^4/L with 75% neutrophils, a hematocrit of 52%, a hemoglobin level of 17.7 g/L, and a platelet count of 213×10^9/L, lactate acid level of 1.7. Liver and kidney function tests were normal. Plain abdominal radiograph showed dilated small bowel loops with air-fluid level suggesting small bowel obstruction (Fig. 1). An emergency oral and intravenous CT scan of the abdomen was obtained, which revealed

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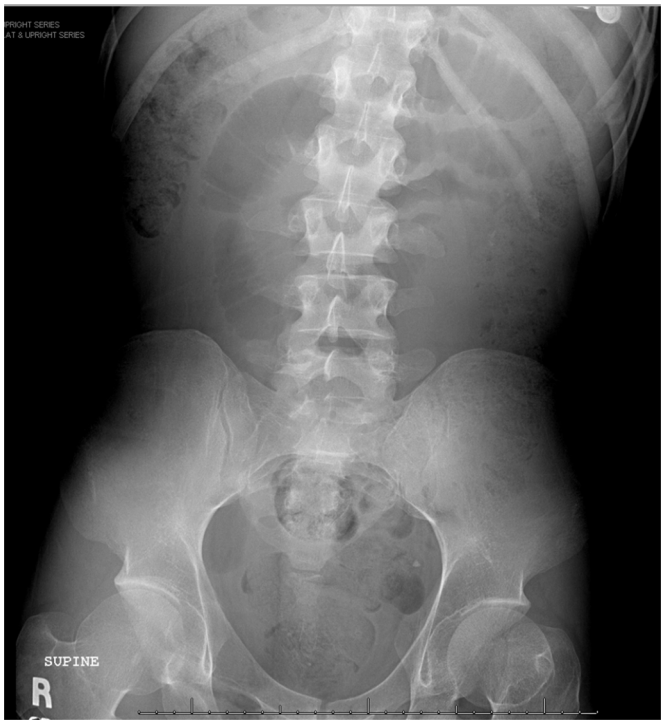

Fig. 1. Plain abdomen X-ray demonstrating multiple dilated small bowel loops, with moderate amount of stool throughout the colon.

Fig. 2. CT with oral and intravenous contrast demonstrating dilated intestinal loops and a mass with a mottled gas pattern suggestive of bezoar (arrow).

multiple dilated small bowel loops with transition point within the right lower quadrant where there was fecalization of small bowel content (Figs. 2 and 3). He was initially treated conservatively as abdominal examination was unremarkable. However he did not improved on conservative management and repeated CT scan showed numerous progressively dilated small bowel loops, increasing intra peritoneal fluid, an exploratory laparotomy was performed.

At laparotomy, a trichobezoar was found impacted 5–6 in. from the ileocecal valve, causing complete intestinal obstruction. The mass was removed through a distal enterotomy as it was not feasible to be fragmented and milked into the cecum. Enterotomy was

Fig. 3. CT with oral and intravenous contrast demonstrating a collapsed ileal loop (arrow) distal to the bezoar.

Fig. 4. The bezoar was a pair of crumbled wrinkled almost desiccated light tan thin translucent plastic gloves, obstructing 5–6 in. proximally from the ileocecal valve.

closed by stapler. A thorough exploration of the small bowel and the stomach for a concomitant trichobezoar was unremarkable. Hospital course was complicated with post-operative ileus which managed conservatively. He was discharged to group home on 15th post-operative day. He was well and asymptomatic 3 months after surgery. The bezoar was a pair of crumbled wrinkled almost desiccated light tan thin translucent plastic gloves (Fig. 4).

3. Discussion

Bezoars are concretions of poorly digested fibers, skins, and seeds of fruits and vegetables or foreign bodies in the alimentary tract. They usually form in the stomach, but they can migrate to the small bowel, where they may cause obstruction [5]. No particular age or sex prevalence has been observed [1,2].

There are four types of bezoars. Phytobezoars are the most common, and are composed of vegetable matter such as celery, grape skin, prune and they contain a large amount of non-digestible fibers such as cellulose, hemicellucose and fruit tannins. Trichobezoars are gastric concretion of hair fibers, and usually presents in patients with history of psychiatric issues and in children with mental retardation. Pharmacobezoars consists of medication bezoars, which in

bulk with adhere, such as cholestyramine, kayexalate resin and antacids. Lactobezoars are milk curd secondary to infant formula, described in low birth weight neonates fed on highly concentrated formula within the first week of life [6].

Abdominal pain (49–100%), epigastric distress (80%), nausea and vomiting (35–75%) and SBO (94%) were the main clinical symptoms [7]. Feeling of fullness or bloating, dysphasia, anorexia with weight loss and even gastrointestinal hemorrhage could be seen.

Plain abdominal radiography is helpful in the diagnosis of intestinal obstruction, but contributes little to the diagnosis of bezoar. The small bowel feces sign or fecalization was first described in 1995 by Mayo-Smith et al. as a CT sign consisting of particulate feculent material mixed with gas bubbles within a dilated small bowel loop [9]. This sign has been reported in 4–9.4% of the cases of small bowel obstruction [9,10]. Previous study sound that an isolated amorphous mass mottled with gas bubbles is suggestive of small bowel feces, whereas a well-defined mass with mottled appearance associated with an encapsulating wall is suggestive of a phytobezoar [11]. The treatment of bezoar is surgical, however, not all cases where the small bowel feces sign is found require surgical intervention. Mayo-Smith et al. reported that 10 of the 22 patients with the small bowel feces sign on CT were treated conservatively [9].

The treatment of choice for SBO due to bezoar is surgery. In most cases, the impaction of bezoar takes place in the narrowest segment of the small bowel, which is located 50–75 cm from the ileocecal valve [8]. Surgical options reported are manual fragmentation of bezoar and pushing it toward cecum [1,2]. If it is not possible enterotomy should be done to remove the bezoar. Segmental bowel resection and anastomosis may be required in presence of complications such as gangrene of bowel [1,2]. During surgery, thorough exploration of abdominal cavity should be done to exclude the presence of concomitant gastric bezoar or intestine bezoars. About one third of patients have multiple intestinal bezoars [12].

Laparoscopy has been used in small series of patients with bezoar-induced SBO with significant shorter operative time and shorter hospital stay compared to the conventional approach. However this approach requires expertise due to the presence of dilated and fragile intestinal loops [1,2].

Recurrence is common unless the underlying predisposing condition is corrected. The best way to manage bezoar is prevention by good eating habits, avoiding high fiber diet particularly in patient with gastric surgery, introducing prophylactic medications to improve gastric motility and psychiatric follow up in patients with psychiatric disorders [1].

4. Conclusion

Bezoar-induced small bowel obstruction is a very rare entity that may be difficult to establish diagnosis preoperatively. There should be high index of suspicion in patients with small bowel obstruction who have history of gastric surgery or patients with underlying diseases or medications which affect gastric motility. The presence of well-defined intra-luminal mass with mottled gas pattern at the site of obstruction in CT abdomen raises the suggestion of bezoar. Surgery is the best management of bezoar-induced small bowel obstruction. Diet modification and management of underlying disorders are the best way of prevention.

Conflict of interest

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Ethical approval

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Consent

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Authors contribution

Baongoc Nasri MD is a corresponding author.
Marius Calin MD is a study design.
Ajay Shah MD is a supervisor.
Brian Gilchrist MD is a supervisor.

Guarantor

Baongoc Nasri is the corresponding author and the guarantor.

References

[1] K. Erzurumlu, Z. Malazgirt, A. Bektas, A. Dervisoglu, C. Polat, G. Senyurek, et al., Gastrointestinal bezoars: a retrospective analysis of 34 cases, World J. Gastroenterol. 11 (2005) 1813––1817.
[2] H. Bedioui, A. Daghfous, M. Ayadi, et al., A report of 15 cases of small bowel obstruction secondary to phytobezoars: predisposing factors and diagnostic difficulties, Gastroenterol. Clin. Biol. 32 (2008) 596––600.
[3] T. Acar, S. Tuncal, R. Aydin, An unusual cause of gastrointestinal obstruction: bezoar, N. Z. Med. 116 (2003) U422.
[4] H.C. Teng, O. Nawawi, K.L. Ng, Y.I. Yik, Phytobezoar: an unusual cause of intestinal obstruction, Biomed. Imaging Interv. J. 1 (2005) e4.
[5] C. Escamilla, R. Robles-Campos, P. Parrilla-Paricio, J. Lujan- Mompean, R. Liron-Ruiz, J.A. Torralba-Martinez, Intestinal obstruction and bezoars, J. Am. Coll. Surg. 179 (1994) 285–288.
[6] C.H. Andrus, J.L. Ponsky, Bezoars: classification, pathophysiology, and treatment, Am. J. Gastroenterol. 83 (1988) 476–478.
[7] Savaş Yakan, Ahmet Şirinocak, Kemal Emre Telciler, Mehmet Tahsin Tekeli, Ali Galip Deneçli, A rare cause of acute abdomen: small bowel obstruction due to phytobezoar, TJTES 16 (5) (2010) 459–463.
[8] C.Y. Lo, P.W. Lau, Small bowel phytobezoars: an uncommon cause of small bowel obstruction, Aust. N. Z. J. Surg. 64 (1994) 187–189.
[9] W.W. Mayo-Smith, J. Wittenberg, G.L. Bennett, D.A. Gervais, G.S. Gazelle, P.R. Mueller, The CT small bowel faeces sign: description and clinical significance, Clin. Radiol. 50 (1995) 765–767.
[10] R. Zissin, A. Osadchy, V. Gutman, V. Rathaus, M. Shapiro-Feinberg, G. Gayer, CT findings in patients with small bowel obstruction due to phytobezoar, Emerg. Radiol. 10 (2004) 197–200.
[11] E. Delabrousse, J. Lubrano, N. Sailley, S. Aubry, G.A. Mantion, B.A. Kastler, Small-bowel bezoar versus small-bowel feces: CT evaluation, Am. J. Roentgenol. 191 (2008) 1465–1468.
[12] N.S. Salemis, N. Panagiotopoulos, N. Sdoukos, E. Niakas, Acute surgical abdomen due to phytobezoar-indusedileal obstruction, J. Emerg. Med. 44 (1) (2013) e21–e23.